

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF OREGON

ROCKY BIXBY, LAWRENCE ROBERTA,
SCOTT ASHBY, CHARLES ELLIS, MATTHEW
HADLEY, JESUS BRUNO, COLT CAMPREDON,
STEPHEN FOSTER, BYRON GREER, KELLY
HAFER, DENNIS JEWELL, STEPHEN
MUELLER, VITO PACHECO, JOHN RYDQUIST,
KEVIN STANGER, RONALD BJERKLUND,
ADANROLANDO GARCIA, BRIAN HEDIN,
CHARLES SEAMON, RANDY KEPER, MATT
KUHNEL, DENNIS ROSGEN, AARON
ST. CLAIR, KEVIN WILSON, JASON BLAIN,
JAMES BORJA, DEVON FIELDS, LESLIE ING,
RICHARD LAWRENCE, JAY LOUISIANA,
JAMES McGOWAN, DONALD YEARGIN,
JASON ARNOLD, and MICHAEL O'RIELLY,

Plaintiffs,

3:09-CV-632-PK

v.

OPINION AND
ORDER

KBR, INC., KELLOGG, BROWN & ROOT SERVICE,
INC., KBR TECHNICAL SERVICES, INC.,
OVERSEAS ADMINISTRATION SERVICES, LTD.,
and SERVICE EMPLOYEES INTERNATIONAL, INC.,

Defendants.

PAPAK, Magistrate Judge:

Plaintiffs Rocky Bixby, Lawrence Roberta, Scott Ashby, Charles Ellis, and Matthew Hadley filed this action against defendants KBR, Inc., Kellogg, Brown & Root Service, Inc.,

KBR Technical Services, Inc., Overseas Administration Services, Ltd., and Service Employees International, Inc. (collectively, the "KBR defendants"), on June 8, 2009. On September 8, 2009, plaintiffs amended their complaint, adding Carlos Avalos, Jesus Bruno, Colt Campredon, Stephen Foster, Byron Greer, Kelly Hafer, Dennis Jewell, Stephen Mueller, Vito Pacheco, John Rydquist, and Kevin Stanger as additional plaintiffs. Plaintiffs amended their pleading a second time on February 2, 2010, adding Ronald Bjerklund, Adanrolando Garcia, Brian Hedin, Lewis Martin, and Charles Seamon as additional plaintiffs. On June 25, 2010, plaintiffs amended their complaint a third time, adding Randy Keiper, Matt Kuhnel, Dennis Rosgen, Aaron St. Clair, and Kevin Wilson as further additional plaintiffs. On October 27, 2010, plaintiffs amended their complaint a fourth time, adding Jason Blain, James Borja, Devin Fields, Leslie Ing, Richard Lawrence, Jay Louisiana, James McGowan, and Donald Yeargin as further additional plaintiffs, and adding Halliburton Company and Halliburton Energy Services, Inc. (collectively, the "Halliburton defendants"), as additional defendants. Plaintiffs amended their complaint a fifth time on January 10, 2011, adding as additional plaintiffs Jason Arnold, Thomas Barella, Daniel Grover, Christopher Wangelin, and Michael O'Rielly. Plaintiffs voluntarily dismissed Barella as a plaintiff in this action on the following day, January 11, 2011, and voluntarily dismissed Grover as a plaintiff in this action on February 25, 2011. On June 16, 2011, these chambers recommended that the court dismiss the plaintiffs' claims to the extent alleged against the Halliburton defendants for lack of personal jurisdiction, and on July 20, 2011, Judge Hernandez adopted that recommendation as his own opinion. The parties stipulated to the dismissal of Avalos, Martin, and Wangelin as plaintiffs in this action, on December 16, 2011, and to the dismissal of O'Rielly as a plaintiff on April 4, 2012. In their fifth amended complaint, plaintiffs

allege defendants' liability for negligence and for fraud arising out of plaintiffs' exposure to sodium dichromate and subsequent hexavalent chromium poisoning while stationed as Oregon National Guardsmen in Iraq and assigned to duty at the Qarmat Ali water plant in May-September 2003.

Now before the court are plaintiffs' motion (#252) to exclude certain testimony of defendants' expert witness Paolo Zannetti, plaintiffs' motion (#260) to exclude certain testimony of defendants' expert witness Barbara Beck, defendants' motion (#301) to strike certain testimony of plaintiff's expert witness Jim Tarr, defendants' motion (#305) to strike the testimony of plaintiffs' expert witness Arch Carson regarding genetic transformation injury, remote exposure injury, and medical monitoring, defendants' motion (#308) to exclude certain testimony of plaintiffs' expert witness Herman Gibb, and defendants' motion (#311) to strike the testimony of Carson regarding the causation of plaintiffs' alleged medical injuries. I have considered the motion, oral argument on behalf of the parties, and all of the pleadings on file. For the reasons set forth below, defendants' motion (#305) to strike the testimony of plaintiffs' expert witness Arch Carson regarding genetic transformation injury, remote exposure injury, and medical monitoring is granted in part and denied in part as discussed below, and each of the other five foredescribed motions is denied.

LEGAL STANDARD

Federal Evidence Rule 702 provides as follows:

A witness who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion or otherwise if:

- (a) the expert's scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue;

- (b) the testimony is based on sufficient facts or data;
- (c) the testimony is the product of reliable principles and methods; and
- (d) the expert has reliably applied the principles and methods to the facts of the case.

Fed. R. Evid. 702.

Broadly speaking, expert opinion is admissible if the expert is qualified and the expert's testimony is both reliable and relevant. *See Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 589 (1993); *Daubert v. Merrell Dow Pharm., Inc.* ("*Daubert II*"), 43 F.3d 1311, 1315 (9th Cir. 1995) ("The question of admissibility only arises if it is first established that the individuals whose testimony is being proffered are experts in a particular scientific field"). The district court must act as a "'gatekeeper,' excluding 'junk science' that does not meet the standards of reliability required under Rule 702." *Domingo ex rel. Domingo v. T.K.*, 289 F.3d 600, 605 (9th Cir. 2002). The Rule 702 inquiry is flexible, however, and depends on the facts of the particular case. *See Elsayed Mukhtar v. Cal. State Univ., Hayward*, 299 F.3d 1053, 1063 (9th Cir. 2002). Admissibility of expert testimony is a matter for preliminary determination by the court under Fed. R. Evid. 104(a), and the party offering the evidence bears the burden of proving admissibility by a preponderance of the evidence. *See Daubert*, 509 U.S. at 592-593. The Ninth Circuit views "the admissibility of expert testimony as a subject peculiarly within the sound discretion of the trial judge, who alone must decide the qualifications of the expert on a given subject and the extent to which his [or her] opinions may be required." *United States v. Chang*, 207 F.3d 1169, 1172 (9th Cir. Cal. 2000) (internal modifications omitted), quoting *Fineberg v. United States*, 393 F.2d 417, 421 (9th Cir. 1968).

FACTUAL BACKGROUND

The parties being familiar with the facts of this case, I do not recite them anew herein. Any facts required for disposition of the motions now before the court will be set forth in the course of the discussion below.

ANALYSIS

As noted above, Federal Rule of Evidence 702 provides that a qualified expert may testify in the form of an opinion or otherwise where the proffered opinion will be helpful to the jury in deciding a contested issue, is based on sufficient data, is based on reliable principles and/or methods and reliably applies such principles to the facts of the case. *See Fed. R. Evid. 702.*

In connection with a challenge to the admissibility of proffered expert opinion testimony, the first determination the court is called upon to make is whether the opining expert is qualified to testify to the proffered opinion. *See Fed. R. Evid. 702; Daubert*, 509 U.S. at 591. A witness may be qualified as an expert with respect to a given subject matter, and may offer expert testimony as to that matter, where the witness has special knowledge, skill, experience, training, or education within that particular subject area. *See Werth v. Makita Electric Works, Ltd.*, 950 F.2d 643, 648 (10th Cir. 1991), *citing Petition of Central Kansas Elec. Co-op, Inc.*, 582 P.2d 228, 236 (Kan. 1978). The fact that a witness may be qualified as an expert with respect to one given area of inquiry does not imply that the same witness is qualified as an expert with respect to any other discrete area of inquiry, and qualification as an expert does not authorize the courts to permit a witness to offer expert testimony within any area of inquiry with respect to which the witness is not so qualified. *See Berry v. City of Detroit*, 25 F.3d 1342, 1352 (6th Cir. 1994). Where a witness' credentials are minimally sufficient to permit the witness to be qualified as an

expert, the courts lack discretion to exclude the witness' proffered expert opinion on the grounds that the witness is not the best-qualified expert in the area or that other witnesses had credentials of greater relevance or prestigiousness. *See Pages-Ramirez v. Ramirez-Gonzalez*, 605 F.3d 109, 114, 115-117 (1st Cir. 2010).

Once it is established that a witness is qualified as an expert, the court must determine whether the expert's proffered opinion "will help the trier of fact to understand the evidence or to determine a fact in issue." Fed. R. Evid. 702(a). In making this determination, the courts must look to whether the opinion testimony is relevant to the presented evidence or to an issue raised in the action, whether the subject matter in question is within the layman's common knowledge or experience, and whether the expert testimony will tend to usurp the role of the jury in any manner. *See United States v. Hankey*, 203 F.3d 1160, 1168-1169 (9th Cir. 2000). Moreover, "[e]xpert opinion testimony is relevant if the knowledge underlying it has a valid connection to the pertinent inquiry." *White v. Ford Motor Co.*, 312 F.3d 998, 1007 (9th Cir. 2002).

Even if a qualified expert's testimony is relevant, such testimony is only admissible to the extent it rests on "sufficient facts or data." Fed. R. Evid. 702(b). The facts and data underlying an expert's opinion are insufficient, and the proffered opinion premised thereon inadmissible, where the opinion is rests on assumptions unsupported or belied by the facts in the record. *See McGlinchy v. Shell Chemical Co.*, 845 F.2d 802, 806-807 (9th Cir. 1988). If, however, the facts or data relied upon by the expert are minimally sufficient to support the expert's opinion, then questions regarding the nature or quality of the underlying data bear upon the weight to which the opinion is entitled or to the credibility of the expert's opinion, and do not bear upon the question of admissibility. *See Hangarter v. Provident Life & Accident Ins. Co.*, 373 F.3d 998, 1017 (9th

Cir. 2004), quoting *Children's Broad. Corp. v. Walt Disney Co.*, 357 F.3d 860, 865 (8th Cir. 2004) ("The factual basis of an expert opinion goes to the credibility of the testimony, not the admissibility, and it is up to the opposing party to examine the factual basis for the opinion in cross-examination").

Expert testimony is likewise admissible only if the opinion expressed is "the product of reliable principles and methods." Fed. R. Evid. 702(c). In connection with this reliability requirement, the United States Supreme Court has held that the courts may consider factors including (i) whether the theory underlying the expert's testimony is subject to logical falsifiability, *see Daubert*, 509 U.S. at 593, sometimes referred to as "Popperian" falsifiability, (ii) whether the theory underlying the expert's testimony has in fact been subjected to scientific testing, *see id.*, (iii) whether the theory underlying the expert's testimony has been subjected to peer review and published, *see id.* at 593-594, (iv) the known or potential rate of error associated with techniques relied upon by the expert, *see id.* at 594, (v) whether the theory underlying the expert's testimony and/or the techniques relied upon by the expert have achieved general acceptance within the relevant scientific community, *see id.* The *Daubert* court opined that the inquiry into the reliability of an expert's testimony is necessarily "a flexible one. Its overarching subject is the scientific validity -- and thus the evidentiary relevance and reliability -- of the principles that underlie a proposed submission. The focus, of course, must be solely on principles and methodology, not on the conclusions that they generate." *Id.* at 594-595. The Ninth Circuit has opined as follows:

Establishing that an expert's proffered testimony grows out of pre-litigation research or that the expert's research has been subjected to peer review are the two principal ways the proponent of expert testimony can show that the evidence

satisfies the first prong of Rule 702. Where such evidence is unavailable, the proponent of expert scientific testimony may attempt to satisfy its burden through the testimony of its own experts. For such a showing to be sufficient, the experts must explain precisely how they went about reaching their conclusions and point to some objective source - a learned treatise, the policy statement of a professional association, a published article in a reputable scientific journal or the like - to show that they have followed the scientific method, as it is practiced by (at least) a recognized minority of scientists in their field. *See United States v. Rincon*, 28 F.3d 921, 924 (9th Cir. 1994) (research must be described "in sufficient detail that the district court [can] determine if the research was scientifically valid").

Daubert II, 43 F.3d at 1318-1319 (modification original).

Finally, expert testimony is admissible only to the extent that "the expert has reliably applied [such reliable] principles and methods to the facts of the case." Fed. R. Evid. 702(d). That is, where an expert utilizes but misapplies reliable principles or methods, such misapplication is sufficient grounds for exclusion of the expert's testimony. *See AG of Okla. v. Tyson Foods, Inc.*, 565 F.3d 769, 780 (10th Cir. 2009), *citing Mitchell v. Gencorp Inc.*, 165 F.3d 778, 782 (10th Cir. 1999). "Moreover, when experts apply methodologies in novel ways, they may arrive at conclusions that result in too great an analytical gap between the data and the opinion proffered to be determined reliable." *Id.* (internal quotation marks omitted), quoting *Hollander v. Sandoz Pharms. Corp.*, 289 F.3d 1193, 1205 (10th Cir. 2002). "In other words, . . . when experts employ established methods in their usual manner, a district court need not take issue under *Daubert*; however, where established methods are employed in new ways, a district court may require further indications of reliability." *Id.*

Here, the parties challenge the admissibility of proffered expert testimony as follows. By and through their motion (#252) to exclude the testimony of Paolo Zannetti, plaintiffs challenge the reliability of the principles and methods underlying the proffered expert testimony of

defendants' air dispersion expert. By and through their motion (#260) to exclude the testimony of Barbara Beck, plaintiffs challenge the reliability of the principles and methods underlying the proffered expert testimony of defendants' toxicology expert. By and through their motion (#301) to exclude the testimony of Jim Tarr, defendants challenge both the qualification of plaintiffs' air pollution expert to testify as to toxicological matters and the reliability of the principles and methods underlying that expert's proffered testimony. By and through their motion (#305) to exclude the testimony of Arch Carson regarding genetic transformation injury, remote exposure injury, and the need for medical monitoring, defendants challenge the qualification of plaintiffs' medical expert to testify as to the specified subject matter, the relevance of the expert's proffered testimony, the reliability of the principles and methods underlying the expert's opinion, and the reliability of the expert's application of principles to data. By and through their motion (#308) to exclude the testimony of Herman Gibb, defendants challenge the reliability of the principles and methods underlying the proffered testimony of plaintiffs' health and environmental risk expert. By and through their motion (#311) to exclude the testimony of Arch Carson regarding causation, defendants challenge the reliability of the principles and methods underlying plaintiffs' medical expert's causation opinion.

Hearings were held in connection with the foredescribed motions in open court on June 20 and 21, 2012. Based on the evidence adduced by the parties in connection with the hearings of June 20 and 21 and on the argument that took place on the record at those hearings, for the reasons set forth by the court on the record over the course of those hearings, and in light of the governing legal principles discussed above, plaintiffs' motion (#252) to exclude testimony of Paolo Zannetti, plaintiffs' motion (#260) to exclude testimony of Barbara Beck, defendants'

motion (#301) to exclude testimony of Jim Tarr, defendants' motion (#308) to exclude testimony of Herman Gibb, and defendants' motion (#311) to exclude the testimony of Arch Carson regarding causation are each denied. In addition, defendants' motion (#305) to exclude Carson's testimony regarding genetic transformation injury, remote exposure injury, and the need for medical monitoring is denied to the extent premised on defendants' challenge to Carson's qualification as an expert with respect to his proffered opinion on the specified subject matter, likewise for the reasons set forth on the record at oral argument.

To the extent defendants' motion (#305) to exclude Carson's testimony regarding genetic transformation injury, remote exposure injury, and the need for medical monitoring is premised on defendants' challenge to the relevance of Carson's testimony, on the reliability of the principles and methods underlying Carson's opinion testimony, and on the reliability of Carson's application of scientific principle to material facts, its disposition requires further analysis beyond that discussed at oral argument on June 20 and 21. As to the question of relevance, I note that defendants have elsewhere (in support of their motion (#333) for partial summary judgment as to certain of plaintiffs' claimed damages) argued that asymptomatic subcellular alteration – such as Carson opines "genetic transformation injury" to be – is not cognizable under applicable Oregon law as actionable present injury. Defendants incorporate such argument by reference in support of the motion to exclude Carson's proffered testimony on this issue, and argue that if genetic transformation cannot serve as an element of plaintiffs' damages claims as a matter of Oregon law, then Carson's testimony is irrelevant and not calculated to assist the trier of fact to determine any fact in issue.

Notwithstanding defendants' argument, I find that Carson's proffered testimony is clearly

relevant to plaintiffs' burden to establish injury. Even assuming *arguendo* that defendants are correct, and that plaintiffs cannot be awarded personal injury damages as compensation for any subcellular genetic transformation they may have suffered as a result of exposure to sodium dichromate at Qarmat Ali, Carson's proffered testimony would be relevant to plaintiffs' burden to establish injury at the time of exposure to sodium dichromate and, as will be discussed in greater detail in connection with disposition of defendants' pending motion (#333) for summary judgment regarding plaintiffs' claims for mental anguish, medical monitoring, and genetic transformation injury, the calculation of plaintiffs' prayed-for emotional distress damages. Indeed, defendants' argument goes not to admissibility under Federal Evidence Rule 702(a), but rather to whether Carson's testimony may be admitted for the specific purpose of establishing a category of claimed damages. I therefore decline to grant defendants' motion (#305) to exclude Carson's testimony regarding genetic transformation injury, remote exposure injury, and the need for medical monitoring on the grounds that the proffered opinion is irrelevant.

As to the reliability of the methods and principles underlying Carson's proffered opinion regarding genetic transformation injury, remote exposure injury, and the need for medical monitoring, defendants variously argue that Carson's opinion is unreliable because of his conceded failure to quantify with precision the dosage of sodium dichromate to which each plaintiff was exposed while serving at Qarmat Ali, because Carson failed to conduct testing to verify whether the plaintiffs suffered genetic transformation injury, and because Carson made certain statements in deposition that could be characterized as contradicting other statements Carson proffered as his expert medical opinion. Because, as discussed on the record at oral argument, the latter two arguments properly bear on the weight or credibility rather than the

admissibility of Carson's proffered testimony, the motion (#305) is denied to the extent premised on Carson's failure to conduct tests for genetic transformation injury and on Carson's apparently contradictory deposition testimony.

As to defendants' argument that Carson's opinion is unreliable due to Carson's failure to quantify dosage, I agree with defendants that, as a general rule, precise quantification of dosage in the toxic tort context is desirable. However, "[w]hile 'precise information concerning the exposure necessary to cause specific harm is beneficial, such evidence is not always available, or necessary, to demonstrate that a substance is toxic and need not invariably provide the basis for an expert's opinion on causation.'" *Clausen v. M/V New Carissa*, 339 F.3d 1049, 1059 (9th Cir. 2003) (internal modifications omitted), quoting *Westberry v. Gislaved Gummi AB*, 178 F.3d 257, 264 (4th Cir. 1999); citing *Heller v. Shaw Indus., Inc.*, 167 F.3d 146, 154-55 (3d Cir. 1999) ("even absent hard evidence of the level of exposure to the chemical in question, a medical expert could offer an opinion that the chemical caused plaintiff's illness"); see also, e.g., *McClellan v. I-Flow Corp.*, 710 F. Supp. 2d 1092, 1101 (D. Or. 2010) ("[l]ack of certainty is not, for a qualified expert, the same thing as guesswork"), quoting *Primiano v. Cook*, Case No. 06-15563, 2010 U.S. App. LEXIS 8859, *13-14 (9th Cir. Apr. 27, 2010); *Berg v. E.I. DuPont de Nemours & Co.*, 293 F.3d 1127, 1129-1130 (9th Cir. 2002) (reversible error for a district court to require a toxic tort plaintiff to establish general causation by proving that a plaintiff's exposure to a substance at least doubled the plaintiff's risk of suffering harm where evidence other than epidemiological evidence established that the substance was capable of causing harm; finding further that "there is no threshold harmful dosage level for radiation because it can cause harm at any level"). Here, plaintiffs have shown that Carson's opinion that there is no threshold harmful

dosage level for sodium dichromate is supported by published, peer-reviewed scientific studies, and is accepted by members of a relevant scientific community, and moreover that Carson properly relied on anecdotal and photographic evidence to support his opinion that sodium dichromate was present at Qarmat Ali in such massive quantities as to far exceed any such no-threshold exposure level. These indicia of the scientific reliability of Carson's principles and methods are sufficient to establish the admissibility of Carson's proffered opinion. Defendants' motion (#305) to exclude Carson's testimony regarding genetic transformation injury, remote exposure injury, and the need for medical monitoring is therefore denied to the extent premised on defendants' argument that Carson's opinion is unreliable due to his failure to quantify plaintiffs' dosage of exposure to sodium dichromate.

Notwithstanding the foregoing, I note that while Carson has opined that all plaintiffs suffered genetic transformation at the cellular level due to sodium dichromate exposure at Qarmat Ali, he has conceded that he cannot opine that such transformation has persisted to the present in the case of any given individual plaintiff, due to the fact that such transformation may have been repaired or corrected as a result of the body's natural healing processes. *See* Deposition of Arch Carson dated March 28, 2010 ("Carson Depo."), 253:5-12. In addition, Carson has conceded in deposition both that the scientific evidence for persistent genetic transformation injury "really isn't fleshed out well" and that he is not "sure" he has "good scientific evidence," *see id.* at 267:5-15 to underlie his opinion that, despite the possibility that such genetic transformation may have self-corrected in some or all plaintiffs, "more likely than not" all plaintiffs still suffer from genetic transformation, *see id.* at 263:13-24. In light of these concessions, it is not possible to find that Carson's opinion testimony regarding the persistence of

genetic transformation to the present and the consequential need for medical monitoring is the product of reliable principles or methods. In consequence, that portion of Carson's opinion regarding the persistence of genetic transformation to the present and the consequential need for medical monitoring is inadmissible under Federal Evidence Rule 702(c).

As to whether Carson reliably applied appropriate principles and methods to the data available to him, because there is reliable scientific evidence that there is no threshold harmful dosage level for sodium dichromate and sufficient, reliable data to establish both that sodium dichromate was present in massive quantities at Qarmat Ali and that each plaintiff was exposed to sodium dichromate while present at Qarmat Ali, I find that Carson's opinion that each plaintiff suffered genetic transformation at the cellular level as a result of exposure to sodium dichromate at Qarmat Ali is the product of reliable application of principle to data. However, as to Carson's opinion regarding the persistence of such genetic transformation to the present and the consequential need for medical monitoring, I again reach the contrary conclusion. In light of Carson's concession that he lacks a good scientific basis for his opinion regarding the persistence of genetic transformation, that any individual plaintiff's genetic transformation may have self-corrected in consequence of the body's natural healing processes, and that although it is possible to test patients "to detect the earliest signs of the results of the genetic transformation," he has not conducted any such tests on any plaintiff in this action, *see* Carson Depo. at 273:2-24, Carson's opinion that "more likely than not" each individual plaintiff still suffers from genetic transformation appears to be both arbitrary and logically unjustified, and not the result of reliable application of appropriate principle to relevant data. Similarly, Carson's failure to differentiate among the plaintiffs in terms of exposure intensity and duration (while less problematic in the

context of determining whether the minimum quantum of harmful exposure was exceeded, due to the reliable scientific evidence that there is no threshold harmful dosage level for sodium dichromate) likewise appears arbitrary in the context of Carson's opinion that "more likely than not" each individual plaintiff still suffers from genetic transformation: plaintiffs have offered no reliable scientific evidence that intensity and duration of exposure to sodium dichromate are immaterial to quantification of the risk that consequential genetic transformation will become cancerous. I therefore find that Carson's opinion regarding the persistence of genetic transformation to the present and the consequential need for medical monitoring is inadmissible under Federal Evidence Rule 702(d) (in addition to being inadmissible under Rule 702(c), as discussed above).

Pursuant to this Opinion and Order, and for the foregoing reasons, Carson's opinion testimony regarding the persistence of genetic transformation to the present and the consequential need for medical monitoring is inadmissible and shall be excluded. I note that, although defendants' motion is captioned as a motion to exclude Carson's testimony regarding genetic transformation injury, remote exposure injury, and medical monitoring, defendants' argument in support of their motion addresses only Carson's opinion testimony genetic transformation injury and the need for medical monitoring, and neither addresses nor defines the "remote exposure injury" referenced in the caption. To the extent, if any, that the phrase "remote exposure injury" as used in Carson's opinion testimony may properly be construed to refer to asymptomatic subcellular genetic transformation, Carson's testimony regarding such injury is likewise inadmissible to the extent that Carson opines that such asymptomatic remote exposure injury persists to the present, and otherwise admissible, whereas to the extent that such testimony is

properly construed as referring to symptomatic injury in consequence of plaintiffs' exposure to sodium dichromate at Qarmat Ali, such testimony is admissible. Thus, pursuant to this Opinion and Order, to the extent that Carson offers opinion regarding *any* symptomatic injury suffered by the plaintiffs in consequence of their exposure to sodium dichromate at Qarmat Ali, regarding genetic transformation injury caused by plaintiffs' exposure, regarding the risks associated with genetic transformation injury, and/or regarding his inability to quantify the probability that genetic transformation injury may have persisted to the present in the case of any individual plaintiff, such opinion is admissible under Rule 702. Under this order, Carson's opinion testimony is inadmissible only to the extent it addresses the persistence of asymptomatic subcellular transformation to the present, personal injury damages flowing directly from such asymptomatic condition, and the consequential need for medical monitoring.

CONCLUSION

For the reasons set forth above, plaintiffs' motion (#252) to exclude testimony of Paolo Zannetti, plaintiffs' motion (#260) to exclude testimony of Barbara Beck, defendants' motion (#301) to exclude testimony of Jim Tarr, defendants' motion (#308) to exclude testimony of Herman Gibb, and defendants' motion (#311) to exclude the testimony of Arch Carson regarding causation are each denied, and defendants' motion (#305) to exclude the testimony of Arch Carson regarding genetic transformation injury, remote exposure injury, and the need for medical monitoring is granted as to Carson's opinion that genetic transformation injury may persist to the

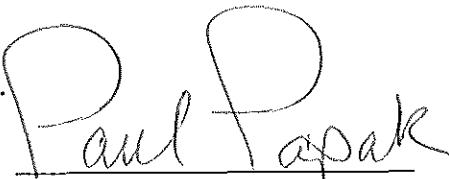
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present and regarding the consequent need for medical monitoring, and otherwise denied, as discussed above.

Dated this 29th day of August, 2012.

A handwritten signature in black ink, appearing to read "Paul Papak". The signature is fluid and cursive, with a stylized "P" and "A".

Honorable Paul Papak
United States Magistrate Judge